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Priority System Urged to End Strife Over R&D Funds

In fragments, it has been said before, from the rostrums of both science and politics: Science can't have it all and therefore should sort out its priorities, in terms of nurturing science and meeting national needs. But now, pulled together in one succinct speech delivered from the high temple itself, the National Academy of Sciences, a new call for choice-making has been issued.

Favoring people before scientific mega-projects, it also defers to "the prerogatives of the political system"—big projects, such as the space station, that ride on political support rather than scientific yearning. And it is accompanied by specific criteria that assign second-order importance to several major basic-science mega-projects, including the Superconducting Super Collider (SSC) and the human genome project.

The call for priority-making in science was presented by Academy President Frank Press in an address, "The Dilemma of the Golden Age," April 26 to the annual meeting of NAS members. Defining the dilemma as an abundance of political support for science amid extreme budget stringencies, Press warned that at a time when politics needs guidance on support of science, it finds "that the inevitable competition for funds leads to conflicting advice from within the scientific community."

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Politics, he said, "learns of caustic debates among scientists in our journals and in the press . . . . Arguments over funding priorities spill over into intellectual attacks on the worthiness of one field of research by practitioners of another . . . . At a time when we should revel in dazzling progress in almost every field of science, this sniping and carping among scientists is disturbing and destructive."

Press warned that even with the relatively new circumstance of a broad political consensus for bountiful support of research, funding is insufficient for all the grand plans of American science. In the Gramm-Rudman-Hollings era, he said, there's no ground for expecting that a gusher of new money will wash away the difficulties. "I believe that it is feckless and destructive for the scientific community to argue 'for science at the expense of the homeless,' as one Congressmen put it. It is also unrealistic to argue for generous funding of both science and social programs until the deficit is brought under control."

Priorities, Press said, are widely abhorred by scientists, many of whom "urge us not to enter what they feel can only be a quagmire. Some believe that we should support all of the science initiatives on the table, that to propose a list of priorities will only serve to divide our community and to insure a reduced budget." Nonetheless, Press said, priorities are now necessary to maintain scientific progress and quell the spreading internecine conflict.

Along with his formula (see box, P. 2), Press called for greater orchestration of federal R&D budget plan-

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In Brief

Harold T. Shapiro, President of Princeton University, is to head the Institute of Medicine's (IOM) study of privatization of NIH (SGR March 15, 1988). The study, suggested late last year by the Office of Management and Budget, will be conducted by a committee of about a dozen, with Michael Millman, of the IOM staff, as Study Director.

The study, however, can't begin until the lumbering Department of Health and Human Services issues a contract for the planned six-month project. A June completion was initially expected, but that's long forgotten. Official title: "Study of Strategies to Sustain the Scientific Excellence of the NIH Intramural Research Program." Shapiro, an economist, was formerly President of the University of Michigan.

Ill will between the National Academy of Sciences and the White House Office of Science and Technology Policy (OSTP) continues to thicken. OSTP Director William R. Graham feels the NAS gave away too much in its renewed exchange agreement with the Soviet Academy of Sciences. Praising the strict terms in the recently completed, separate US-USSR intergovernmental pact, Graham graciously remarked to the *Chronicle of Higher Education*, "If your next-door neighbor is known to steal, you don't tend to leave your door unlocked very often." A private assessment of Graham from an NAS staffer: "No one here has any respect for him."

The growth rate in industrial spending on biotechnology R&D is coming down from the big highs of recent years, NSF reports. It was 20 percent in 1985, and 17 percent in 1986. Last year, it dropped to 12 percent. The figures and more are in NSF Highlights Report No. 88-306 (four pages), free, from: NSF Division of Science Resources Studies, 1800 G St. NW, Washington, DC 20550; tel. 202/634-4634.

. . . More Power Sought for President's Science Adviser

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ning, noting that at present, "Funds are requested by some 15 federal departments and agencies without coordination. Requests appear in the budget process as 14 separate budget functions, spread over at least six divisions of the Office of Management and Budget, and requiring approval by nine appropriations committees in Congress, with input from a number of budget and authorization committees."

Opposing creation of a Department of Science as "a disaster," and writing off the possibility of tidying up Congress's sprawling committee structure, Press recommended a greater budget role for the President's Science Adviser. The Adviser, he said, in collaboration with the Director of the Office of Management and Budget, "should be given the coordinating role [for R&D] within the Executive Branch and should assume the responsibility for a coherent and adequate federal science and technology budget."

Roles for Academy and OTA

As for where the priority-making process should start, Press noted that the Congressional Research Service had recently stated that the Academy and the Congressional Office of Technology Assessment are key resources for guiding Congress in financing research. Also, he reported, the Senate Budget Committee has asked the Academy to assist it in making R&D choices. He said that the Academy "can analyze and comment on the impact of the overall budget for science and technology. And we must also be willing, for the first time, to propose priorities across scientific fields, if the times call for it."

Nothing different in R&D policy is likely to occur in the waning days of the Reagan Administration. Relations between the Academy and the White House Science Office have deteriorated beyond repair. Presidential Science Adviser William R. Graham is not about to concede that the Executive branch budget for research is "made without coordination," though, of course, it is.

In Congress, budgetmaking is a chaotic affair, mainly driven by a combination of momentum and local interests. But there's always some measure of interest in developing more enlightened ways. If the next President assigns high importance to the techniques of making research policy, the Press scheme could take root in a loose collaboration between Executive R&D budget planning and the House and Senate Budget and Appropriations committees. The opponents of priority making are correct in one respect: any venture that comes to Congress with less than top marks is likely to be murdered at one point or another in the financially strained appropriations process.—DSG

Press's Criteria for R&D Choice

Following are Academy President Frank Press's "criteria for the allocation of [R&D] resources that are appropriate for the unprecedented federal deficit and the state of science and technology. They are," Press stated, "politically realistic and responsive to Congressional requests for advice . . . . They are based on two premises. One is that we must seek to maintain American leadership in science and technology. The other is that we will steadily overcome the current national budget deficit crisis . . . "

Category 1. To be funded with highest priority, at a time of budgetary constraint when all agency budgets will be limited. I include in that:

1. Preserving the human resource base and the pipeline for science and technology. This means absolute priority for training and research grants reaching the largest number of scientists, engineers, clinical researchers. This encompasses the funding of research universities and national laboratories in categories reaching the largest number of investigators and graduate students. Examples include NIH, NSF, DOE allocations that reach individuals and small groups, fellowships and assistantships, NASA space science programs, DOE basic energy sciences, mission agency research, such as the US Geological Survey.

2. National crises, e.g., R&D for AIDS, renewing the nation's space-launch capacity.

3. Extraordinary scientific breakthroughs, e.g., high-temperature superconductivity.

Category 2. Large projects, with important national or scientific goals, to be authorized now. If full funding must be delayed beyond the present because of the budget deficit crisis, let it be so. However, sufficient funding should be made available to maintain the project until such time as large-scale commitments can be made. Examples: 1. SSC; 2. Mapping and sequencing the human genome.

Political category. (Which is "like the 800-pound gorilla," Press said, in a departure from his prepared text.)

1. The DOD R&D budget and national security.
2. The Space Station
3. Regional economic development, and employment.
4. Projects that enhance US image, like manned space flight, or projects with significant contributions by foreign governments.
5. Initiatives to enhance US competitiveness, e.g., education, training, civil sector R&D.

Fraud Inquiry: NIH on the Capitol Griddle (continued)

Part II—concluding the report that began in the preceding issue of the April 12 hearing on scientific fraud before the House Energy and Commerce Committee's Subcommittee on Oversight and Investigations, chaired by John D. Dingell (D-Michigan).

Throughout the hearing, NIH officials stressed their conviction that fraud is not a serious problem in science. A few cases have occurred, William F. Raub, the Deputy Director of NIH, acknowledged, "But it remains my firm belief that in those extreme instances, we are dealing with a vanishingly small number [of incidents], and that this is not a signal for any deep disease within the scientific community itself." But Dingell and his colleagues were savoring the thesis of NIH mavericks Walter Stewart and Ned Feder, namely, that unforgivable error and deliberate misdeeds are so frequent and commonly tolerated that mainstream science has become oblivious of the problems.

The Congressmen had their quarry pinned to the witness table, summoned by subpoena and under oath, and they pressed them hard, often with questions brimming with disbelief.

Raub explained that the first line of defense, still being implemented under new NIH regulations, is the universities, and that their investigations are subject to scrutiny by NIH's own fraud office, headed by Mary Miers, a non-scientist who holds the title Institutional Liaison Officer. Robert E. Windom, the Assistant Secretary for Health expressed his confidence in the system. Dingell then brought up the appointment of two colleagues of Nobelist David Baltimore to a three-member committee created by NIH to investigate allegations of error in a paper co-authored by Baltimore.

Dingell. If you were on the other side, would you think you were getting a fair evaluation?

Windom. On the other side, it would not look like so . . . . No it would not look like so from the other side.

Dingell. Do you have any rules that preclude the appointment of that kind of person to review those sorts of things at NIH?

Windom. Not that specifically at this time, no, sir.

Dingell. Then nonspecifically, do you have any rules that deal with this generally?

Windom deferred to Miers, who stated that "our policies do state that when we constitute a panel, or when an institution constitutes a panel, they should pay close attention to both financial and professional associations, as well as any—." Dingell interrupted, demanding to know why, if conflict-of-interest rules are in place, Baltimore's colleagues were assigned to investigate the paper he co-authored.

Miers. I didn't do my homework. It's as simple as that.

Dingell. You apparently lack guidance from on high, because it appears that this is not an uncommon practice at NIH and also at HHS . . . . What were your instructions with regard to this kind of conflict?

Miers. I was assumed to know and I do in general know [the policy]. My instructions were to obtain names from scientific staff and others who are knowledgeable in the field, so that we might make a selection. I got the names from a variety of sources. Some of the institute staff, I know, did such things as literature searches before they gave me the name. I made a mistake. I assumed that everyone had done that [checked for conflict of interest] and I didn't do it myself . . . . Sir, our policy is to avoid a conflict of interest. Obviously, a financial or institutional affiliation is conflict of interest. It is not as clear that co-authorship constitutes a conflict of interest. But I agree with you that it's better to avoid it.

Miers coupled her explanation with an expression of confidence in the two appointees to the NIH investigating committee, both of whom have since been dropped from membership.

Dingell. You still believe that they would have been good for the job?

Miers. Yes, sir, but I'm willing—

Dingell. Well, it looks like you have a problem down there, Dr. Windom . . . . What are you going to do about this to get this straightened out, so that everybody understands that we don't want cooked figures and we don't want cooked panels judging the people who cook figures?

Windom responded that the "experience is certainly beneficial to us" and that "in the future, we are going to be looking more closely, and we'll do everything possible to prevent that, sir."

Rep. Ron Wyden then introduced a new issue, intimidation of whistle-blowers. Why, he asked Windom, "in a field like science, where people are taught to seek the truth, people are fearful of speaking the truth?"

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NIH Management Sees a Different Kind of Problem

The privately stated but heartfelt view from the upper echelons of NIH is that the principal fraud problem confronting the biomedical sciences is a maliciously cultivated illusion that a fraud problem exists. That's the post-battle assessment NIH officials were offering last week as they nursed wounds from a tumultuous hearing chaired by Rep. John D. Dingell (SGR April 15).

NIH Director James B. Wyngaarden, who was at a meeting in Paris when the debacle occurred on Capitol Hill, met last week with his senior managers to consider strategy for dealing with what they clearly consider a trivial matter gone berserk. However, they face formidable difficulties in making this specter go away, and they know it.

A major reason is that their inhouse tormentors, Walter Stewart and Ned Feder, self-appointed fraud busters serving on the NIH intramural staff, have now been made officially available to Dingell's Committee as investigators and advisers. "They will work for us on an as-needed basis," a Committee staff member told SGR last week, adding the borrowing tactic has been used in other investigations by Chairman Dingell's powerbase, the Energy and Commerce Committee. The Stewart-Feder loan was negotiated with and approved by Robert E. Windom, Assistant Secretary for Health in NIH's parent agency, the Department of Health and Human Services. At the hearing that preceded the borrowing, Windom appeared to only dimly comprehend what was going on.

"Cases Coming Out of the Closet"

The Dingell Committee aide said he expects that heavy use will be made of Stewart and Feder. He noted that, following the hearing, which was extensively reported in *The New York Times, The Washington Post,* and other major papers, "a lot of people with fraud complaints have been coming out of the closet."

Dingell's ability to requisition the Stewart-Feder team is enhanced by his Committee's jurisdiction over NIH's basic statutes, many of which are up for renewal this year. In general, the powerful Chairman has been extremely supportive of NIH, and there's a wariness about crossing him. He cares about NIH, as an object of public policy and out of personal interest: The Congressman's brother, James V. Dingell, is a PhD researcher in the Heart, Lung, and Blood Institute at NIH.

As a follow-up to last month's hearing on allegations of a deliberate coverup of an error in a paper published in *Cell,* Dingell's staff has requested laboratory documents and research data from labs at Tufts and MIT. In addition, Committee staff members plan to interview persons involved in the episode, including one of the co-authors of the challenged paper, Nobelist David Baltimore, Director of the Whitehead Institute for Biomedical Research, at MIT. Championed by Feder and Stewart, the chief complainant in the case, Margot O'Toole, says the coverup occurred when she was a postdoctoral fellow in the laboratory of another co-author, Thereza Imanishi-Kari, formerly at MIT, now at Tufts University.

As a Chairman in action, Dingell has a ferocious manner that he lavishes equally on minor transgressions and egregious crimes. Furthermore, attempts at balance and fairness are optional in Congressional proceedings, as was evident when the Dingell hearing tenderly heard complaints of officially tolerated scientific error and misconduct, without giving the accused an opportunity to respond. Committee aides say that some of them will be heard at forthcoming hearings.

Baltimore Disputes Charges

Following the Dingell hearing, Baltimore issued a statement that denied misconduct and added: "The [*Cell*] paper charted new ground. In many cases, the laboratory techniques then available were barely adequate to the task. As new methodologies are brought to bear on the subject, new aspects are being uncovered and data modifying previous conclusions are likely to appear. Such is the way of science," the statement concluded.

The statement clearly falls short of an ironclad defense of the paper, but it comports with the argument that Feder and Stewart thrive by portraying honest errors as deliberate malfeasance. Tireless performers on NIH word processors, they also stand accused of plaguing busy people with challenges to interminable memo wars—and painting them as suspect when they ignore the bait.

Meanwhile, Feder and Stewart are beneficiaries of a thunderous pledge of personal protection by Chairman Dingell. The NIH management would happily jettison the pair on the grounds that they no longer perform the laboratory research for which they were hired. They defiantly respond that keeping science pure is an essential function that NIH barely acknowledges. The latest word in this bizarre affair is that they are investigating several cases that, in their view, NIH has either neglected or officially whitewashed.

. . . An Investigation that Ignored the Key Witness

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Windom, accepting Wyden's premise without hesitation, answered, "I think it is probably the climate that exists today that causes that fear to be there," adding that "It is early in the history of these events [scrutiny of scientific misconduct], and as time goes, we need to take all of the input we can get to see what we can do to help change the climate."

Wyden then proposed a remedy, noting that he would pursue it when the NIH re-authorization bill came before a Subcommittee on which he serves: "What about creating an independent program of quality assurance for scientific research, so that there really would be some independence for the research process . . . . ?" Windom replied, "We want to look at all opportunities."

Dingell then turned to the peculiar situation of Miers' office agreeing to investigate the disputed paper co-authored by Baltimore after Stewart and Feder wrote a critique that challenged inquiries at MIT and Tufts that had cleared the authors. Dingell wanted to know why Miers did not give Stewart and Feder copies of the reports from the two institutions.

Miers. Sir, they have been given permission [by NIH] to explore issues of accuracy in the scientific literature. They have not been given permission to investigate or evaluate the behavior of grantees . . . .

Dingell. Please tell me what investigation you did when you received the reports from Tufts and from MIT.

Miers. I and some other staff reviewed them against the manuscript which Stewart and Feder kindly presented to us, and it was at that point that we determined to convene our own investigation and form a panel, sir.

Asked by Dingell to describe the investigation, Miers responded that "in a technical matter of this sort, the approach of our office would be to convene a panel." Whereupon Dingell thundered: "The simple statement is that you didn't make any investigation, isn't it? You had these documents for one year, and you did nothing with them." Miers answered: "We all agreed that the issues raised in the Stewart-Feder manuscript were not answered by either the Tufts or the MIT investigations, and it was at that point that we decided to convene a panel to conduct an investigation on behalf of our office."

Dingell asked whether Miers had ever discussed the case with the original complainant, Margot O'Toole, a former postdoctoral fellow in an MIT laboratory headed by Thereza Imanishi-Kari, a colleague of Baltimore. Miers replied, "I didn't need to talk to Dr. O'Toole to know what we had to investigate." Further questioning brought out that, though O'Toole was not contacted by Miers, Miers had discussed O'Toole's allegations with Stewart and Feder "on various occasions over the last year and a half." Now Dingell exploded:

"What do you do down there?" he demanded. "I'm trying to figure out what you do. You described an investigation, but you can tell me nothing you did which would fit within the rubric of that definition. You never talked to Dr. O'Toole. She is the principal complainer. She is the whistle-blower . . . . How do you conduct an investigation without talking to the person who has the most complete knowledge in the matter?"

Miers. Sir, I don't consider this investigation to have begun until we get our panel convened and have an opportunity to go over the documents in hand, and then—

Dingell. I believe you have had the documents now, according to your comments, for seven months. When do you propose to talk to Dr. O'Toole?

Miers. Sir, I'd be happy to talk to her tomorrow.

The Chairman battered the groggy witness for another round or two, and then yielded to Rep. Wyden, who took up again with Assistant Secretary Windom, asking him whether he remained satisfied with NIH's procedures for addressing misconduct. Windom replied, "No, not satisfied, sir, and not happy with the situation. I think it's something we need to do a great deal more about."

The Subcommittee next turned to the $26,000 NIH fellowship stipend that O'Toole is legally obliged to

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Researcher Indicted for Fraud

In what the government described as the first criminal charges arising from allegations of scientific fraud, Stephen E. Breuning, formerly on the faculty of the University of Pittsburgh, was indicted last month by a federal grand jury in Maryland.

Breuning's case was referred to the Justice Department last year after the National Institute of Mental Health concluded that he had fabricated data on the effects of tranquilizers on retarded children. NIMH ruled him guilty of "serious scientific misconduct" (SGR March 15, 1987). Pittsburgh subsequently repaid NIMH $163,000 in grant funds awarded to Breuning. He is currently Director of Psychological Services at the Polk Center, near Pittsburgh, a state institution for the retarded.

The indictment charges Breuning with two counts of making false statements and with obstructing the NIMH investigation. Breuning has described the charges as "patently untrue."

France: Candidates Promise Help for Sagging R&D

Paris. The management, or, as the opposition contends, the mismanagement, of research over the past two years by the government of Premier Jacques Chirac has figured prominently in the two-stage Presidential election here. In the first stage, completed on April 24, Chirac emerged by a small margin as the conservative candidate. President Francois Mitterrand ran far ahead for re-election as the Socialist candidate in the final election, to be held on May 8.

Throughout the contest, science publications and various interests in the scientific and technological communities have intensely queried the candidates about their regard and intentions for research. They have all responded that they hold science in the highest esteem, commend it as an elixir for the economy, and asserted that it should be tended to with a generosity and sensitivity of which the other aspirants for the Presidency could not possibly be capable.

What accounts for this electoral outburst of interest in the obscurities of science policy? The explanation is that prior to Chirac's election, candidates on both the left and the right regularly espoused research and development as an essential tool for remedying France's economic difficulties. Under Chirac, however, a reaction set in to the long-reigning process of more R&D upon more R&D. In the Presidential campaign, Chirac stands accused of having, during his brief premiership, wrought destruction upon scientific affairs.

Recruitment of staff by the largest public research agency, the *Centre National de la Recherche Scientifique* (CNRS), was thrown into turmoil by legal controversies over the leadership of the huge, nationwide agency. The growth of funding for R&D, which had been more or less steady during the period 1980-85, was stopped. The President of the University of Paris II, Georges Durry, commissioned by the government to report on the condition of higher education, stated with obvious sadness that universities had fallen into a competitive disadvantage in recruiting faculty with skills in information processing and electronics. The deterioration in university staff has been going on for some time. What was new were figures showing that 55 percent of the tenured professors are more than 50 years old.

Despite this situation, the Minister for Research and Higher Education, Jacques Valade, appears to be paralyzed. Rather than devising means to encourage the introduction of young, new blood into the creaking ranks of university research, Valade attempted to reintroduce, on the sly, the old system of the State Thesis. A French contribution to academic torture, the system requires researchers to undertake a three- to five-year elaboration of their theses, and thus delays the granting of university degrees.

The turnabout in policy came at a time after France, to the great relief of students and the satisfaction of the many nations with which it has scientific exchanges, had more or less adopted the PhD system. The reversion to the State Thesis is seen as a disruption of the pattern of young scientific careers.

Minister Valade has added to the already abundant confusion about national science policy by speaking of his duty of "regulating today and safeguarding tomorrow." One of the devices employed on this mission is tax credits for research, which are supposed to provide industry with "the desire for initiative and new research." The measure allowed some 2000 firms to escape paying $100 million in taxes in 1987. Lacking anything else to show in his policies on science, this tax measure is the prime exhibit offered by Jacques Chirac in support of his claim as a promoter of scientific strength. He did, however, pledge that if elected, he would support higher budgets for research.

The dismal record shows that during his term of office, government support for research has declined by 4 percent, while the CNRS budget has gone down by 3 percent. Chirac has also pushed for the elimination of French support for the R&D programs of the European Economic Community.

Given this evidence of sentiment at the top, the role of

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repay if she does not resume her scientific career. Dingell asked Raub, "Who is it that should repay it? Is it Dr. O'Toole . . . or is it, perhaps, the people who forced her out of the business?" Raub replied, "Perhaps neither," noting that the payback requirement included a forgiveness provision for "particular hardship." Raub added that "the moving and disturbing commentary this morning would certainly make us take a thorough look at any request from Dr. O'Toole as to hardship associated with her ability . . . "

Declaring himself "outraged" at the inept investigation and any possibility that O'Toole might be required to repay the stipend, Dingell declared, "What it tells me is that rogues prosper and honest men and women suffer."

As the hearing approached a close, after six uninterrupted hours of testimony, Dingell addressed Windom, Raub, and Miers:

"Now I don't want you to get the impression that this Committee is going to stage a one-day hearing, bring you up, make you miserable, and then let you go on about your business. When we do these things, we try to see to it that the pain and suffering goes on for a greater period of time, until the abuse that is obvious is taken care of . . . We are going to be visiting again about these matters . . . . "—DSG

. . . Mitterrand Says R&D Must be "Cherished Baby"

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Minister of Research Valade is indeed ambiguous. He comes from a university background. He is part of a political current that traces back to the Presidency of Georges Pompidou, who achieved enduring fame in the politics of French science by declaring that "research is the best way to lose money." Above all, Valade came to office as a successor to the youthful Alain Devaquet, a researcher who had been handpicked for the post by Premier Chirac. Alas, after a mere six months, the once-promising Devaquet was out, yet another victim of student demonstrations against government education policies.

Upon leaving office, Devaquet repaid his benefactor by doing his best to tarnish the government's treatment of the universities and science in a book felicitously titled: *The Amoeba and the Student: The Universities and Research—An Emergency Case*. In this work, he credits Chirac's opponent, President Mitterrand, with a "good understanding of research."

The other candidate of the right, Raymond Barre, was eliminated in the April 24 semi-finals, but not for lack of grand promises about research. In his "Project for France," carried in full-page newspaper advertisements, Barre, a former Premier himself, stated his goal for France as "scientific and technical research at the international level." (This, of course, raised the observation that we were previously assured that it was already there.) Barre said that he wanted to increase public and private R&D expenditures to a combined total of 3 percent of gross national product (in 1985, it was 2.25 percent). It was not difficult to recall, however, that when Barre was in power at the end of the last decade, he was relatively neutral with regard to science. His emergence as an enthusiast did not help him overcome Chirac.

The candidate promising the most for R&D is President Mitterrand. "If France wants to succeed," he has stated, "research must become the Republic's cherished baby." He has declared his support not only for applied research but also for basic—which is something new on the recent political scene. "Do not be afraid of or criticize research which finds nothing," Mitterrand cautions in an extensive campaign of newspaper advertisements titled "Letter to All of France." "From a mass of investigations," he stated, "a discovery will emerge."

Though both Mitterrand and Chirac have pledged support for more R&D money, the details have been left quite sparse. The lyricism of President Mitterrand seems excessive to researchers who are accustomed to being flattered during election campaigns and quickly forgotten afterwards. But, during the two years of the Chirac premiership, the budget situation has been so strained that the statements of the candidate-President are sweet music for the scientific community.—FS

Job Changes & Appointments

Warren J. Baker, President of California Polytechnic State University, San Luis Obispo, has been appointed by President Reagan to a six-year term on the National Science Board, the 24-member policy body for NSF.

James Ionson, founding director of the Innovative Science and Technology Office of the Strategic Defense Initiative, has resigned to establish a high-tech company, JDC Enterprises.

Gerald P. Dineen, Vice President for Science and Technology, Honeywell, Inc., has been elected to a three-year term as Foreign Secretary of the National Academy of Sciences, succeeding ***H. Guyford Stever.***

Jean-Francois Stuyck-Taillandier, Deputy Director for Scientific Cooperation in the French Ministry of Foreign Affairs, has been appointed Director of International Research and Cooperation for the *Centre National de la Rechereche Scientifique* (CNRS), succeeding ***Jean-Francois Miquel,*** who has become Director of the CNRS *Laboratoire d'Evaluation et de Prospective Internationales,* which tracks the migrations and career patterns of scientists.

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creation of an interagency coordinating body to handle the crowd now rushing in for a piece of the genome action, for which annual spending is expected to ascend quickly to at least $200 million. OTA says the coordinator could be established by legislation or informal agreement, with membership drawn from government agencies, academe, and industry.

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Keys to US Competitiveness (35 pp.), report by the Conference Board, an international "business information service" subscribed to by some 3600 firms, of surveys conducted last year of senior industrial R&D executives, academics, and state officials to identify ingredients of industrial competitiveness. The surveys were assisted by NSF and the National Governors' Association.

$15 per copy for associates of the Conference Board, academics, and members of non-profit organizations; $60 for others. Order from Conference Board, 845 Third Ave., New York, NY 10022; tel. 212/759-0900.

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The Technological Dimensions of International Competitiveness (79 pp.), report commissioned by the National Academy of Engineering, produced by a committee laden with senior execs from big high-tech industry, urges a bigger federal role in assisting industry against foreign competition, plus the usual recommendations about education and local and state initiatives; also calls for a study of how universities are faring in joint ventures with industry.

No charge. Order from NAE, Office of Public Awareness, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 202/334-1628.

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Research and Development FY 1989 (312 pp.), produced by the American Association for the Advancement of Science, with assists from 20 other professional societies, this is the 13th in an annual series that combs through the President's R&D budget proposals for the coming fiscal year and identifies trends and perils. The volume is the basic reader for the AAAS annual R&D colloquium, held this year April 14-15, in Washington. It provides an agency-by-agency look at recent budget history and fine detail on the proposed budget, but comes too late in the budget cycle to aid lobbying for or against and too early to provide clues to the numbers that will finally emerge from Congress.

$12 per copy for AAAS members; $15 for others. Order from AAAS, Publications Sales, 1333 H St. NW, Washington, DC 20005; tel. 202/326-6462.

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Pacific Research Centers, second edition (517 pp.), provides addresses, telephone and telex numbers, names of senior officials, outlines of research programs, budgets, publications titles, etc. for research organizations in Japan, the PRC, South Korea, Indonesia, Australia, New Zealand, etc.

$300.00. Order from Gale Research Co., Book Tower, Detroit, Michigan 48226; tel. 313/961-2242.

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Mapping Our Genes. Genome Projects: How Big? How Fast? (211 pp.), report by the Congressional Office of Technology Assessment (OTA) for the House Committee on Energy and Commerce (which has legislative authority for NIH and big parts of DOE), recommends

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